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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,936	11/25/2003	Karl Barth	P03,0445	8331
26574	7590	05/30/2007		
SCHIFF HARDIN, LLP PATENT DEPARTMENT 6600 SEARS TOWER CHICAGO, IL 60606-6473			EXAMINER LIEW, ALEX KOK SOON	
			ART UNIT	PAPER NUMBER
			2624	
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			05/30/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/721,936	BARTH, KARL	
	<b>Examiner</b>	<b>Art Unit</b>	
	Alex Liew	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/721,931. The conflicting claims are not identical because copending application requires the additional step of filtering out structures of no interest and retain structures of interest, not required by claim 1 of the current application. However, the conflicting claims are not patentably distinct from each other because:

- Claim 1 of the current application and claim 1 of the co-pending application recite common subject matter;
- Whereby claim 1 of the application, which recites the open ended transitional phrase "comprising", does not preclude the additional elements recited by claim 1 of the co-pending claim, and

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- Whereby the elements of claim 1 of the current application are fully anticipated by copending application claim 1, and anticipation is “the ultimate or epitome of obviousness” (*In re Kalm*, 154 USPQ 10 (CCPA 1967), also *In re Dailey*, 178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641 (CCPA 1974)).

Claim 2 of the current application is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of copending Application No. 10/721,931. The conflicting claims are not identical because copending application requires the additional step of filtering out structures of no interest and retain structures of interest, not required by claim 2 of the current application. However, the conflicting claims are not patentably distinct from each other because:

- Claim 2 of the current application and claim 4 of the co-pending application recite common subject matter;
- Whereby claim 2 of the application, which recites the open ended transitional phrase “comprising”, does not preclude the additional elements recited by claim 4 of the co-pending claim, and
- Whereby the elements of claim 2 of the current application are fully anticipated by copending application claim 4, and anticipation is “the ultimate or epitome of obviousness” (*In re Kalm*, 154 USPQ 10 (CCPA

1967), also *In re Dailey*, 178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641 (CCPA 1974)).

Claim 8 of the current application is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 3 of copending Application No. 10/721,931. The conflicting claims are not identical because copending application requires the additional step of filtering out structures of no interest and retain structures of interest, not required by claim 8 of the current application. However, the conflicting claims are not patentably distinct from each other because:

- Claim 8 of the current application and claim 3 of the co-pending application recite common subject matter;
- Whereby claim 8 of the current application, which recites the open ended transitional phrase “comprising”, does not preclude the additional elements recited by claim 3 of the co-pending claim, and
- Whereby the elements of claim 8 of the current application are fully anticipated by copending application of claim 3, and anticipation is “the ultimate or epitome of obviousness” (*In re Kalm*, 154 USPQ 10 (CCPA 1967), also *In re Dailey*, 178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641 (CCPA 1974)).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 4 and 7 are rejected under U.S.C. 102(b) as being anticipated by Crook (US pat no 5,452,407).

With regards to claim 1, Crook discloses a method for producing an image, comprising the steps of

- in a computer, storing a three dimensional image of an object as a volume dataset and segmenting a curved surface of the stored three-dimensional image (see column 4 lines 28 – 34 – the image data is downloaded to a workstation as CAD format, the image stored is shown in figure 5)
- transforming the volume dataset and the segmented surface to transform the segmented curved surface into a plane (see figure 6 – the image is segmented by dividing the femur into grids) and
- representing the transformed curved surface of the three-dimensional image with a slice of a predetermined thickness at least one location selected from the group

consisting of inside the three-dimensional image and outside the three-dimensional image (see figure 7b – 86).

With regards to claim 3, Crook discloses a method as claimed in claim 1 comprising employing an image of at least a part of a living subject as said three dimensional image and wherein said surface is a body surface of the living being (see figure 3 – 40 – the scanner scans surfaces of a human).

With regards to claim 4, Crook discloses a method as claimed in claim 1, comprising selecting said subject from the group consisting of a bone of a living being and an organ of a living being (see figure 5).

With regards to claim 7, Crook discloses a method as claimed in claim 1, comprising representing image data allocated to said slice of predetermined thickness by volume rendering (see figure 6 – the femur is divided into three dimensional grids).

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 2 is rejected under U.S.C. 103(a) as being unpatentable over Crook ('407) as applied to claim 1 further in view of Essinger (US pat no 4,939,646).

Crook discloses all the limitations discussed in the rejection for claim 1, but does not disclose converts each of the cross section from Cartesian coordinate to polar coordinate. Essinger discloses performing a coordinate transformation for a cross sectional image slice to polar coordinates relative to a line extending through the three-dimensional image that is oriented substantially perpendicularly to slice image (see figure 4 – step 43), determining contours that are imaged in transformed slice image and allocate to the surface of the three-dimensional image (see figure 4 – step 44 – the points needed to calculate spline coefficients are on the cross section image in polar coordinate form,  $r_i$  and  $\theta_{ai}$ ), transforming the pixels of the contours back into the coordinate system (see figure 4 – step 46). Crook discloses extracting pixels along said contours for representing the surface of the three-dimensional image, after transformation of the image into the plane with said slice of predetermined thickness (see figure 7b). One would re-extract the three-dimensional shape of the object is because to compare changes occur after the calculation of the spline coefficients, shown in figure 4 – step 46, where the results are being display. One skill would include a step of transforming each cross sections into polar coordinate system because to extract a series of functions which describes the shape of the object (see column 3 lines 10 – 16), to allow the user or doctor to examine if there is any disease present.



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3. Claims 5 and 6 are rejected under U.S.C. 103(a) as being unpatentable over Crook ('407) as applied to claim 1 further in view of Wood (US pat no 5,283,837).

With regards to claims 5 and 6, Crook discloses all the limitations discussed in the rejection for claim 1, but does not disclose orienting plane along a line. Wood discloses orienting a three-dimensional image (see column 3 lines 60 – 66), where each image plane are being rotated each time, when rotation of the three-dimensional image is made and also the rotation axis is the line of sight toward and away from the three-dimensional image. One skill in the art would include step of rotating the three-dimensional image because to find areas of the three-dimensional image, which has potential disease tissues such as cancer, by viewing all 360 degrees of the living object, to improve disease detection.

4. Claim 8 is rejected under U.S.C. 103(a) as being unpatentable over Crook ('407) as applied to claim 1 further in view of official notice (MPEP 2144.03).

Crook discloses all the limitations discussed in the rejection for claim 1, but does not disclose applying filtering process such as smoothing, edge-accentuation and structure-accentuation. Crook do teach applying a filtering process through the three dimensional image (see figure 11 – 96). However, it is well known in the art of image processing to use smoothing, low pass filter, and edge-accentuation, sober operator on an image.

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One skill in the art would include such steps because to extract addition details or remove noise, to improve the quality of the image.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Liew whose telephone number is (571)272-8623. The examiner can normally be reached on 9:30AM - 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571)272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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**5/27/07**



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